CinemaStar™ 5K2000

3.5-INCH HARD DISK DRIVES FOR VIDEO APPLICATIONS

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Cool, quiet, energy-efficient digital video storage

Highlights

> Up to 2TB[1] capacity
> CoolSpin™ technology
> 24x7 availability[2]
> Silent-seek acoustics
> SMART Command Transport (SCT) for optimized video streaming
> Excellent power utilization
> Patented load/unload ramp for enhanced reliability
> Targeted 1.2 million hours MTBF[3]

Applications

> HD Digital Video Recorders (DVR)
> DVD/HDD recorders
> DVR-enabled televisions
> Home security video centers
> Media centers

2TB and 1.5TB
SATA 6Gb/s

Features and Benefits

	Feature / Function	Benefits
Capacity	Up to 2TB of storage	* Up to 500 hours of high-definition video, 2000 hours of standard video, 700 movies, 500,000 4-min songs or 1000 video games
Power	Advanced Power Management	Reduces power during idle periods
	HiVERT™ technology	Excellent power efficiency
	CoolSpin™ motor design	Requires low peak power enabling more cost-effective and cooler power supplies
Acoustics	Silent seek	Ultra quiet operation
Reliability	Thermal Fly-height Control (TFC)	Better soft error rate for improved reliability and performance
	Head load/unload	Protects disk during non-operation
	Write Splice Prevention	Protects against sudden power disruptions
	Media Maintenance	Extends recording life and capabilities
Performance	SMART Command Transport (SCT)	Adaptive error correction for optimum video delivery
	SmoothStream™ technology	Optimized video streaming
	CE features set	Improved handling of high-quality video streams

*Actual storage may vary depending on the compression rate applied. Capacities represented may not be combined.

A different spin for digital video

The CinemaStar™ 5K2000 hard drive provides a vast 2TB capacity and features innovative CoolSpin technology to deliver a new level of power efficiency and quiet operation for digital video applications. Key to CoolSpin technology is an optimization of motor speed to provide an ideal balance of performance, power utilization and acoustics. With customized features, capacity and cool operation, the 3.5-inch CinemaStar 5K2000 enables a new generation of digital video recorders and set-top boxes that store more hours of video, run more quietly and use less power.

Designed to support on-demand digital video solutions

An exceptional blend of audio/visual (AV) features fine tunes the CinemaStar 5K2000 for digital video storage needs. Hitachi SmoothStream™ technology supports the ATA-7 streaming command set, and SCT provides time-limited error recovery and thermal monitoring capabilities. IT data and video streams have different throughput demands, and AV-Zoning allows the definition of various error recovery procedures for predefined ranges of data blocks or zones to enable the system to effectively deliver critical data and time-sensitive video content from a single drive. Other features that tailor this drive for streaming video applications include Read Continuous mode, which helps manage error recovery for video streams, and Media Maintenance enhancements, to help prevent track wear-out from around-the-clock operation.

Innovation for a more sustainable environment

The CinemaStar 5K2000 demonstrates Hitachi's ecological leadership with its halogen-free design and power-efficient operation. Both of these features helped qualify the drive for the Hitachi EcoTrac classification, which identifies products that minimize environmental impact in the areas of product design, manufacturing, operation and disposal.

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Specifications (Preliminary)

Model(s)	HCS5C2020ALA632 HCS5C2015ALA632
Configuration	
Interface	SATA 6Gb/s
Capacity (TB)[1]	2 / 1.5
Max. areal density (Gbits/sq. in)	411
Performance	
Data buffer (MB)[4]	32
Media transfer rate (Mbits/sec, max.)	1366
Interface transfer rate (MB/sec, max.)	600
Reliability	
Error rate (non-recoverable, bits read)	1 in 10^{14}
Load/unload cycles	300,000
Availability[2] (hrs/day x days/wk)	24x7
Targeted MTBF[3] (hours)	1,200,000
Power	
Requirement	+5 VDC (+/-5%) +12 VDC (+/-10%)
Startup (max. A)	1.2 (+5V) & 1.5 (+12V)
Performance idle (W, avg.)	4.2
Physical size	
z-height (mm, max.)	26.1
Dimensions (width x depth, mm, typical)	101.6 x 147
Weight (g, max.)	680
Environmental (operating)	
Device temperature[5]	0° to 75° C
Relative humidity (non-condensing)	8% to 90%
Shock (half-sine wave (G 2ms))	70
Vibration, random (G RMS)	0.67 (XY)
Environmental (non-operating)	
Ambient temperature	-40° to 70° C
Relative humidity (non-condensing)	5% to 95%
Shock (half-sine wave (G 2ms))	300
Vibration, random (G RMS)	1.04 (XYZ)
Acoustics (A-weighted sound power)	
Operating (Bels, typical)	2.4

1 One GB is equal to one billion bytes and one TB equals 1,000GB (one trillion bytes) when referring to hard drive capacity. Accessible capacity will vary from the stated capacity due to formatting and partitioning of the hard drive, the computer's operating system, and other factors.
2 Based on typical AV multi-stream recording environments accumulating up to 2000 hours of HD content per month or equivalent workload
3 This MTBF target is based on a sample population in typical CE/surveillance product environment and is estimated by statistical measurements and acceleration algorithms under normal operating conditions. MTBF ratings do not predict reliability of an individual drive.
4 Portion of buffer capacity used for drive firmware
5 Temperature tested at top cover surface

Power efficient for cooler operation

CoolSpin and HiVERT technologies combine to create this new class of CE drive that delivers best-of-breed power utilization and thermal emissions. HiVERT technology helps efficiently manage power consumption. These innovations, together with eighth-generation Advanced Power Management, make the CinemaStar 5K2000 the ideal choice for digital video recorders that run cooler, require less power and last longer.

Hitachi quality and service

All Hitachi hard drives are designed to the highest quality standards with field-proven components. They are backed by Hitachi worldwide technical support and integration services, enabling customers around the globe to bring their products to market quickly.

How to read the CinemaStar model number
HCS5C2020CLA632 = 2TB/32MB buffer

H = Hitachi
C = CinemaStar
S = Standard
5C = CoolSpin technology
20 = Full capacity — 2TB
20 = Capacity this model, 20 = 2TB (15 = 1.5TB)
A = Generation code
L = 26.1mm z-height
A6 = SATA 6Gb/s
3 = 32MB buffer
2 = Reserved

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The EcoTrac symbol identifies Hitachi hard drives that deliver on the principles of lower operating costs, safer product disposal and a more sustainable environment.

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